A REVISION OF THE COLOMBIAN SNAKES OF THE GENERA *LEIMADOPHIS, LYGOPHIS, LIOPHIS, RHADINAEA,* AND *PLIOCERCUS,* WITH A NOTE ON COLOMBIAN *CONIOPHANES.*

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A recent survey of approximately 200 specimens of the Colombian snakes currently assigned to the genera *Leimadophis, Lygophis, Liophis, Rhadinaea,* and *Urotheca,* has led me to offer the following analysis of these groups in Colombia.

Previous remarks on Colombian snakes of these genera have appeared in literature from time to time, by various herpetologists (including myself), all dealing with one, or a very few, specimens at a time. Thus a considerable amount of error has accumulated. I here do my best to clear it up. Many of these erroneous identifications were accepted by my old friend and correspondent Hermano Nicéforo María, of the Instituto La Salle in Bogotá, and so got into his recent list of these genera (1942, Revista Academia Colombiana de Ciencias, 5, 17, pp. 90-92, numbers 52-67, 70-71). These errors are not his but those of others, I among them; thus I feel less hesitation in contrasting my present analysis with his list, especially since he has asked me to do so and has put before me the majority of the snakes upon which these remarks are based.

In Hmno. Nicéforo's list are 7 species of *Leimadophis* from Colombia. I think these valid and add a new one, making eight. In *Lygophis* he has one species, with which I agree. In *Liophis* appear five forms, only one of which I think a valid *Liophis,* the other Colombian snakes listed being *Leimadophis.* A true *Liophis* is, however, listed under *Rhadinaea.* Four forms are listed under *Rhadinaea;* two are valid, one is a *Liophis,* one is not Colombian. I add one new form, and put another from his *Urotheca* list into *Rhadinaea.* He lists two forms under *Urotheca*; one is a *Rhadinaea,* and for the other I prefer the name *Pliocercus,* as will be explained later.

Nineteen species appear as Colombian in these five genera: *Leimadophis* 7, *Lygophis* 1, *Liophis* 5, *Rhadinaea* 4, *Urotheca* 2. My own analysis gives only 16 forms (although I have described two new ones): *Leimadophis* 8, *Lygophis* 1, *Liophis* 2, *Rhadinaea* 4, *Pliocercus* 1.

I define the genera by relation to the type species. The type species of *Leimadophis, Lygophis,* and *Liophis* occur in Colombia and specimens are available for examination. The type species of *Rhadinaea* is a Panamanian snake and I have examined it, and also the Mexican type species of *Pliocercus*.

Leimadophis Fitzinger, 1843, Syst. Rept., p. 25.

GENOTYPE: *Natrix almadensis* Wagler = *Coluber reginae* Linné.

DEFINITION: Snakes allied to *Coluber reginae* Linné; dorsal scales smooth with a single scale pit in 17-15 rows (or 19-17-15); usually with posterior striping, but stripes not extending onto head; some trace of spots or bars, at least anteriorly; maxillary dentition with a gap followed by two markedly enlarged ungrooved teeth; hemipenis bifurcate with an uncalyculate (disked) tip.

RANGE: Mountains of Costa Rica south through most of South America.

CONTENT: A considerable number of species. Eight forms in Colombia.

REMARKS: This genus is very close to and may eventually be merged with the earlier genus *Dromicus* (the Antilles, the west coast, and the Galápagos). *Dromicus* has a calyculate tip to the hemipenis. *Leimadophis* is also allied to *Lygophis,* which, however, to judge from the type species, is striped to the snout, lacks scale pits, is a slimmer snake, and the dorsal scales are 19-17, not reducing to 15. I regard the Colombian genus *Xenodon* as a larger and stouter ally of *Leimadophis,* with more pronounced dentition and with more (and oblique) dorsal scales.

Five specific names have been based on specimens from Colombian territory. I arrange these as follows:

epinephalus Cope 1862.

bimaculatus Cope 1899 (*bipraeocularis* Boulenger 1903).

pseudocobella Peracca 1914 (*alticolus* Amaral 1931).

I recognize as Colombian the following names based on specimens from outside Colombia:

reginae Linné 1758.
typhlus Linné 1758.
melanotus Shaw 1802.
pygmaeus Cope 1868.

I describe as new from Colombian specimens:

lamonae Dunn 1944.

I do not recognize as Colombian two forms to which specimens from Colombia have been assigned in recent literature:

taeniurus Tschudi 1845 from Peru.
albiventris Jan 1863 from Ecuador.

Of these, *taeniurus* may be allied to *bimaculatus* but is not identical; *albiventris* is very close to *epinephalus,* but I think it not identical and in any case *epinephalus* is the older name.

Key to Colombian *Leimadophis*.

A. No longitudinal dark striping, even on tail; if any markings visible a pattern of indefinite cross-bars.
- B. Dorsal scales on body 19-17-15; ventrals over 150; uniform, or young with fine diagonal cross-stripes of dark and light; belly unpigmented; east of the Andes .... **typhlus**
- BB. Dorsal scales 17-15; ventrals under 150; above with coarse and vague dark cross-blotches; belly spotted; Central and Western Andes ..... **pseudocobella**

AA. Definite dark stripes present (at least on tail); blotching or spotting or barring if present visible only anteriorly; dorsal scales 17-15.
- B. Dark stripes begin at anus or slightly anterior to it.
  - C. Belly with black spots; east of the Andes .... **reginae**
  - CC. Belly unpigmented; rest of Colombia .... **epinephalus**
- BB. Dark stripes from middle of body to tip of tail.
  - C. Ventrals with dark spotting.
    - D. Ventrals 165 or more (average 173); caudals 60 or more; Eastern Andes .... **bimaculatus**
    - DD. Ventrals 154 or less (av. 148); caudals less than 60; Central and Western Andes .... **lamonae**
  - CC. Ventrals immaculate.
    - D. Anterior dorsal spots fuse into a posterior broad dorsal stripe; ventrals 143 or more; caudals 60 or more .... **melanotus**
    - DD. Anterior dorsal spots fade and disappear posteriorly, no dorsal stripe; ventrals 134 or less; caudals 46 or less .... **pygmaeus**

The above key is purely for purposes of identification, and does not express relationship. I think *typhlus,* with its high dorsal scale count and its peculiar juvenile pattern, is quite distinct from the rest. The other form with no stripes, *pseudocobella,* seems to me to be a mountain ally of *epinephalus,* since northern *epinephalus* likewise has marked dorsal anterior cross blotches, and since I think the two may hibridize. *Reginae* is extremely close to *epinephalus* and may be proved to intergrade with it. Of the four forms with stripes on the body, *melanotus* is the most distinct, *bimaculatus* and *lamonae* can only be distinguished by scale counts, and *pygmaeus* seems to be a dwarf form.

Leimadophis typhlus (Linné).

Coluber typhlus Linné 1758, Syst. Nat. p. 218.

TYPE LOCALITY: "Indiis".

RANGE: Northern South America east of the Andes.

COLOMBIAN RANGE AND MATERIAL: Nine Colombian localities, from Suaita in Norte de Santander to La Tagua, Caquetá, and Puerto Asís, Putumayo, in the south. Medina (580 m.) is the highest. Ten specimens are recorded, of which I have seen six.

REMARKS: The *Coluber typhlus* of Linné had 140 ventrals. Colombian specimens have 153-160. This discrepancy needs clearing up. I follow my predecessors who have identified Colombian specimens as *typhlus*.

Leimadophis reginae (Linné)

Coluber reginae Linné, 1758, Syst. Nat. p. 219.

TYPE LOCALITY: "Indiis".

RANGE: Northern South America east of the Andes.

COLOMBIAN RANGE AND MATERIAL: From Santa Librada (near the Venezuelan border) in the north to the Caquetá River, La Pedrera, in the south (seven localities). I have examined 11 specimens. La Salina (Boyacá, 1439 m.) seems to be the highest locality.

REMARKS: Linné's specimen had 137 ventrals and 70 caudals. Counts from Colombia give: 135-153 ventrals (av. of 14 is 142.8); 57-76 male caudals (av. of 5 is 69.6); 55-68 female caudals (av. of 6 is 59.3).

I have not examined any very young specimens, but none of those I have seen show any anterior markings. Jan described *albiventris* as a race of *reginae* from Ecuador, without black ventral blotches. His counts (150 ventrals and 56-62 caudals) agree with *reginae*. One of two specimens from Puerto Asis shows very little ventral color; the other is normal. The name *albiventris* has been applied to some Colombian specimens of *reginae* as well as to other Colombian forms, most recently by Prado (1941, Mem. Inst. Butantan 15, p. 373-5). Under the name *Liophis reginae albiventris* he lists and gives counts of one Panamanian and eight Colombian snakes. There were no *albiventris* in the lot, but four Colombian species, as follows: *Leimadophis reginae, L. epinephalus, L. bimaculatus bimaculatus, L. bimaculatus lamonae*. Incidentally, he puts *reginae*, the type species of *Leimadophis*, into *Liophis*.

To the west *reginae* is replaced by *epinephalus*, which lacks the ventral blotches, has lower ventral counts, and has some anterior spotting or barring.

Leimadophis epinephalus epinephalus (Cope).

Liophis epinephalus Cope, 1862, Proc. Acad. Nat. Sci. Philadelphia 14, p. 78.

TYPE LOCALITY: Truandó R., Chocó, Colombia. Type ANSP 3688.

RANGE: Panamá and Colombia.

COLOMBIAN RANGE AND MATERIAL: From the Panamanian border south to the San Juan R., east to Pamplona and southeast to Mariquita, Sasaima, and Pacho. I have seen 15 specimens from 12 localities Pamplona (2340 m.) and Pacho (1859 m.) being the highest. I recently took a specimen at Mariquita. I have collected this species in Panamá, and have examined some 200 Panamanian specimens.

REMARKS: The type has 133 ventrals. I have counted from 132-141 in Colombian specimens. Records attributable to this form would increase the range of ventral count to 126-144. The average ventral count of 13 specimens is 136. Males have 50-68 caudals; females have 52-56.

The western specimens (Rio Truandó, Acandí, Segovia, Pueblo Rico, Jericó, R. San Juan) have more definite dark bands anteriorly, while the eastern ones (Mariquita, Rionegro, Pamplona, Muzo, Pacho, Sasaima) have at most a dark nape band, with dark spots back of it. Thus there is an eastwards trend towards *reginae*. In the other direction, to the north in Costa Rica, the race *epinephalus juvenalis* has still more definite dark bands anteriorly.

This form has also been called *albiventris*, in my opinion erroneously.

The Pamplona specimen may have served as a basis for a Colombian record of *taeniurus*, but it has 136 ventrals and *taeniurus* has 182.

Possibly *opisthotaenia* Boulenger 1908, from Merida, Venezuela, may be allied. It has 149-151 ventrals.

Leimadophis pseudocobella (Peracca).

Liophis pseudocobella Peracca, 1914, Mem. Soc. Sci. Neuchatel 5, p. 99.

Liophis cobella alticolus Amaral, 1931, Bull. Antivenin Inst. Amer. 4, p. 87.

TYPE LOCALITIES: *pseudocobella* from Angelópolis and Pueblo Rico: *alticolus* from Jericó.

RANGE: Endemic to the central and western Andes of Colombia. From 2560 m. at San Pedro to 1375 m. at Quimbaya. In the Central Andes it occurs at San Pedro, Medellín, Rionegro, Pensilvania, Santander, Pereira, and Villamaría (from which localities I have seen specimens), and has been reported from Sonsón, Angelópolis, and Quimbaya. West of the Cauca it occurs at Jericó and Pueblo Rico. I have seen specimens from both places. Some 36 specimens have been examined.

REMARKS: The ventral range is 140-148. The caudals in males are 45-52; in females 50-57.

I regard this form as a mountain ally of *epinephalus*. Both occur at Jericó (23 *pseudocobella* and 1 *epinephalus* examined) and at Pueblo Rico (three co-types of *pseudocobella* reported and one *epinephalus* examined). Possibly they intergrade or hybridize, as a single male from Pueblo Rico (with 146 ventrals and 50 caudals) has no belly spots, a stripe on the tail, and the dorsal markings somewhat intermediate. The ventral counts are too high and the caudal count too low for male *epinephalus*, and the coloration is wrong for *pseudocobella*.

I agree with Peracca in considering this snake related to *reginae*, and disagree with Amaral in relating it to *cobella*. The dentition and the single scale pit, noticed by Peracca, are like those of *reginae*.

The Costa Rican mountain race of *epinephalus* (*juvenalis*) also resembles *Liophis cobella* and has been confused with it.

Leimadophis bimaculatus bimaculatus (Cope).

Liophis bimaculatus Cope, 1899, Bull. Commercial Mus. Philadelphia 1, p. 11, pl. 4, f. 2.

Liophis bipraeocularis Boulenger, 1903, Ann. Mag. Nat. Hist. (7), 12, p. 351.

TYPE LOCALITIES: *bimaculatus*: five specimens sent by the Colombian Government to the Chicago Exposition in 1898, presumably from the vicinity of Bogotá, and now in the Amer. Mus. Nat. Hist. *bipraeocularis*: type, a female from Facatativá, is probably in the British Museum.

RANGE: Eastern Andes of Colombia, in Boyacá and Cundinamarca. La Uvita, Chita (3005 m.), and Sogamoso in Boyacá; "region of Suma Paz" (= Sumapaz) Monserrate (3241 m.), Bogotá and numerous localities in the Sabana of Bogotá; Aguadita (2000 m.), Fusagasugá (1746 m.), and Sasaima (1225 m.) in Cundinamarca. Possibly it gets as low as Honda (229 m.) in Tolima, and Villavicencio (498 m.) in Meta, as a specimen from each of these localities is so labelled in the Instituto La Salle.

MATERIAL: I have examined some 50 specimens of this snake, a number of them alive.

REMARKS: The ventral average of 30 specimens is 173, with a range of 165-182. The single Aguadita specimen has 153, a fact to be noted later. The caudals of males are only slightly more numerous than those of females (males 60-77, av. of 12 is 68.4; females 60-68, av. of 12 is 63.9). About 1/4 of the specimens have seven upper labials; the rest have eight. About 1/3 of the specimens have two preoculars; the rest have one. Two of the specimens (one from Guatavita and one from Bogotá) have very little black on the ventrals, most have the ventrals about half black and half light, in some the belly may be almost entirely black. All specimens have a pair of black nape spots dorsally, and behind these a vague series of black spots may be made out in the more vividly marked specimens, in an upper and a lower row on each side. The lower row at about midbody becomes a definite black stripe on the third scale row, and this ventrolateral stripe extends to the tip of the tail. The upper row becomes a vague dark stripe on the sixth scale row towards the end of the body, and fuses with its fellow to become a middorsal dark stripe on the tail.

Two very young specimens (total length 202 mm.) from La Uvita, at the northern end of the known range, are very vividly marked. The spots of the dorso-lateral row fuse with those of the ventro-lateral row to form bars in the anterior half of the body; posteriorly these bars break in half and fuse lengthwise into the two stripes. An adult from La Uvita, and three adults from nearby Chita, are quite normal in color. Young from the Bogotá area are quite similar in color to adults. The smallest seen specimen measures 199 mm.; the largest male 578 mm.; the largest female 813 mm.

The snakes are terrestrial and quite inoffensive. None of the specimens in the laboratory could be induced to bite, but like other *Leimadophis* I have seen alive they flattened and spread the neck when annoyed. They eat both *Hyla* and *Oedipus*. The record female, from the grounds of the Ciudad Universitaria (Universidad Nacional), laid 16 eggs in October.

Cope did not live to see his description of this snake in print. The description is extremely accurate and complete, and it is amazing that in the 45 years since it was published his name *bimaculatus* has never been applied to a single additional specimen, the later name *bipraeocularis* or the incorrect name *albiventris* having been used by all authors.

It has been suggested that this form is allied to *triscalis* Linné (195 ventrals, 86 caudals) of the Guianas, on the one hand, and to *taeniurus* Tschudi (182 ventrals) of Peru on the other. I cannot follow up this suggestion at present, but there is a very close alliance with a quite similar form of the Central and Western Andes, which seems to me a race of *bimaculatus*. A description of this new form follows.

Leimadophis bimaculatus lamonae ssp. nov.

TYPE: A male in the collection of the Instituto La Salle, Bogotá.

TYPE LOCALITY: Sonsón, Antioquia, Colombia, 2410 m.

RANGE: Central and Western Andes in Antioquia and Caldas. From 1537 m. (Andes) to 2560 m. (San Pedro). From San Pedro in the north to Manizales in the south.

DIAGNOSIS: Closely similar to *L. bimaculatus bimaculatus* in color, but with fewer ventrals (av. 148) and caudals (av. 56).

DESCRIPTION: In color this form differs from its ally in that the black nape spots are less evident; the dorsal stripes are more prominent and usually the area between them is dark so that a broad brown dorsal stripe appears on the hind half of the body; the belly spotting is vaguer and more clouded. The ventral range is 139-154 (av. of 11 is 148) except for the Andes specimen which has 177, and which may be compared with the single Aguadita specimen of *bimaculatus* with 153. Omitting these two specimens the high count for *lamonae* is 154; the low count for *bimaculatus* is 165. The caudal range is 50-60, which just meets the caudal range of 60-77 for *bimaculatus*. No sexual difference is notable. The Andes female has 57 caudals; the Aguadita female has an imperfect tail.

REMARKS: This snake is named for Mrs. Robert Lamon in slight recognition of her kindness to Mrs. Dunn and myself. On a drive with her we saw our first Colombian snake in the field (a *Leimadophis bimaculatus*), and she arranged for the collection of a number of specimens from the Bogotá Country Club.

This snake has almost certainly been mentioned before in literature, from the Central and Western Andes (Yarumal, La Ceja, Titiribí, and Pensilvania), in papers by Amaral and by Prado, as *epinephalus* with spotted belly, or as *albiventris* with spotted belly, or as *bipraeocularis*. I have examined two from San Pedro, one from Sonsón, six from Pensilvania, one from Andes, and one from Manizales. The Andes specimen is in the Instituto de Ciencias Naturales, and the others are in the Instituto La Salle.

The snake described from Ecuador as *fraseri* by Boulenger seems allied to this. It had 160 ventrals and 70 caudals, and was quite similar in color.

Leimadophis melanotus (Shaw).

Coluber melanotus Shaw, 1802, Zoology, p. 534.

TYPE: Based on Seba's plate (vol. 2, pl. 62, f. 3, Serpens Africana Bonae Spei eleganter lemniscata).

TYPE LOCALITY: Cape of Good Hope (in errore).

RANGE: Northern South América, east of the Andes, but also occurring in the Santa Marta-Cartagena area, and in the Magdalena valley as far up as Espinal and Purificación. As high as 5500 feet in the Santa Marta area.

COLOMBIAN MATERIAL: Fifteen specimens from: Pto. Asis, Macanal, Arauca and Cúcuta in the south and east; Barranquilla in the north; Pto. Boyacá, La Mesa, Espinal and Purificación in the upper Magdalena valley.

REMARKS: I follow my predecessors in identifying this snake as *melanotus*. Shaw gives 158 ventrals. Colombian specimens for which I have counts range from 143 to 155 (av. of 7 is 150). Shaw gives 50 caudals. Colombian counts give 61-73, no sexual difference notable (av. of 5 is 64). These discrepancies cannot be explained at present.

The general pattern is one of irregular anterior spotting which very soon becomes aligned into a ventro-lateral stripe and a dorso-lateral stripe, with so much dark pigment between them as to make a unified dorsal stripe of some width. It is thus not dissimilar in pattern to *bimaculatus* and *lamonae*, but the stripes extend further forward.

In 1937 (Proc. Biol. Soc. Washington 50, p. 12) I identified a Cúcuta specimen of this form as *bipraeocularis*. This was pure ignorance.

Leimadophis pygmaeus (Cope).

Liophis pygmaeus Cope, 1868, Proc. Acad. Nat. Sci. Philadelphia, p. 103.

TYPE LOCALITY: Napo or upper Marañon.

RANGE: From area of type locality into eastern Andes of Colombia to Pacho (1859 m.).

COLOMBIAN MATERIAL: Two specimens seem to be this form; one from Mocoa, Putumayo, and the other from Pacho, Cundinamarca.

REMARKS: The type was said to have 8 upper labials; the two Colombian specimens have seven. The type was said to have 17 dorsal scales; the two Colombian specimens have 17-15. The type had 128 ventrals; the Pacho specimen has 131 and the Mocoa one 134. The type (not sexed) had 31 caudals; the Mocoa male has 41 and the Pacho male 46. The under surface is unmarked. In the type and in both Colombian specimens there is a dark nape bar, followed by a single bar in the Mocoa specimen and by 4 or 5 faint bars in the Pacho one. These bars fade out posteriorly except for their lower ends (on scale row 3), which form a dark ventro-lateral stripe from mid-body onto the tail. The general pattern is thus on the same principal as that of other Colombian *Leimadophis*, excepting *typhlus* and *pseudocobella*.

This seems to be a very small *Leimadophis*. The type was less than 200 mm. long, and the two Colombian specimens, while apparently adult, are under 300 mm. They are thus much smaller than the other Colombian species which seem all about the same size, i. e., half a meter for males and 3/4 of a meter for females when full grown.

The Napo type locality is relatively close to Mocoa.

Lygophis Fitzinger 1843, Syst. Rept., p. 26.

GENOTYPE: *Coluber lineatus* Linné.

DEFINITION: Snakes allied to *Coluber lineatus* Linné; dorsal scales smooth without pits (except a few on nape) in 19-17 rows; maxillary dentition as in *Leimadophis;* striped from snout to tail; hemipenis as in *Leimadophis*.

RANGE: Panamá and northern Colombia through most of South America east of the Andes.

CONTENT: Perhaps six species, one in Colombia.

REMARKS: While this genus is extremely close to *Leimadophis* it is perhaps worth recognition on a basis of absence of scale pits (often very hard to find in poorly preserved specimens of *Leimadophis*), plus the complete striping.

Lygophis lineatus (Linné).

Coluber lineatus Linné, 1758, Syst. Nat. (10), p. 221.

TYPE LOCALITY: Asia (in errore).

RANGE: Northern South America. An apparently isolated colony in the Provinces of Coclé and Herrera, Panamá.

COLOMBIAN RANGE AND MATERIAL: The known Colombian range is covered by the localities whence I have seen specimens: Barranquilla (2), Ponedera (2), Magangué, Barrancabermeja (5), Villavicencio. The type had 169 ventrals and 84 caudals. Colombian counts give 166-174 ventrals and 83-92 caudals. The scale rows are 19-17.

Liophis Wagler 1830, Syst. Amph. p. 187.

GENOTYPE: *Coluber cobella* Linné.

DEFINITION: Snakes allied to *Coluber cobella* Linné; dorsal scales smooth, without pits, in 17-15 rows; maxillary dentition without gap, last two teeth somewhat enlarged; markings various but not striped on body; hemipenis as in *Leimadophis*.

RANGE: South America east of the Andes.

CONTENT: A considerable number of species, two in Colombia.

REMARKS: Dentition and lack of scale pits distinguish these snakes from *Leimadophis*. They are more frequently barred in color. They are very close to the very brilliantly ringed snakes of the genus *Erythrolamprus,* but in *Erythrolamprus* the scale rows are 15 throughout, and the last two maxillary teeth are usually grooved.

Key to Colombian *Liophis*.

A. Medium sized snakes with coarse and irregular dark blotches or rings separated by narrow light interspaces .... **cobella**

AA. Small snakes with rather uniform gray or olive dorsum, a dark lateral stripe on the tail, belly with irregular dark mottling and under side of tail white .... **purpurans**

Liophis cobella (Linné).

Coluber cobella Linné, 1758, Syst. Nat. (10) p. 218.

TYPE LOCALITY: America.

RANGE: Northern South America east of the Andes.

COLOMBIAN RANGE AND MATERIAL: It has been recorded from Sta. Librada (near the Venezuelan border) and Arboledas in the north; from Villavicencio; and from La Pedrera in the south. I have seen a specimen from each of the two last localities. The type had 150 ventrals. The Santa Librada specimen was said to have 148, the Villavicencio specimen has 140, and the La Pedrera one has 161. The type had 54 caudals. The Villavicencio female has 47 and so does the La Pedrera male.

Liophis purpurans (Dumeril and Bibron).

Ablabes purpurans Dumeril and Bibron 1854, Erp. Gen. 7, p. 512.

TYPE LOCALITY: Mana (Cayenne).

RANGE: From Guiana to Peru.

COLOMBIAN RANGE AND MATERIAL: A single male from Pto. Asis, with 156 ventrals and 55 caudals. The type had 165 ventrals and 51 caudals. Prado (1941, Ciencia, 2, p. 345) recorded this specimen as a *Rhadinaea,* and it so appears in Hmno. Nicéforo's list. Examination of the dentition and hemipenis convinced me that it was a *Liophis*, and I note that Schmidt (Oct. 1943, Zool. Ser. Field. Mus. Nat. Hist. 24, 26, p. 285) has called Peruvian specimens *Liophis*.

Rhadinaea Cope 1863, Proc. Acad. Nat. Sci. Philadelphia 15, p. 100.

GENOTYPE: *Taeniophis vermiculaticeps* Cope. From the Atlantic slope of Veragua, Panamá.

RANGE: From southeastern United States and Mexico to Peru.

DEFINITION: Snakes allied to *Taeniophis vermiculaticeps* Cope; scales smooth, pitless, usually the same number throughout body, but reducing in two Colombian species, usually 17, rarely 19 or 21; maxillary dentition with slight gap posteriorly, followed by two slightly enlarged ungrooved fangs; hemipenis unforked, with basal hooks and calyculate and capitate tip; body color uniform or striped.

CONTENT: A considerable number of Central American species; four in Colombia.

REMARKS: I regard this genus, with its similarly striped body and grooved tooth ally *Coniophanes*, and its ringed ally *Pliocercus*, all of which enter the Andean region of South America, as of northern origin and quite distinct from the southern genera with which they have been confused (*Liophis* with *Rhadinaea; Erythrolamprus* with *Coniophanes*).

The name *Urotheca* Bibron 1843 (in De La Sagra, Hist. Cuba, Rept. p. 218) has been used for a mixture of the snakes of the genera *Rhadinaea* and *Pliocercus*. I prefer to use names based on well established type species, and the identity of *U. dumerilii* Bibron (*l. c.*) is not established at all. The snake has never again been reported, and the type seems not to have been examined by anyone well aquainted with neotropical snakes. Its status is open to three interpretations:

1. The species is Cuban and awaits rediscovery, in which case it may very likely be a form of the later described Cuban genus *Arrhyton*.
2. The species is not Cuban and awaits rediscovery, in which case it may very likely be a species of the later described genus *Rhadinaea*.
3. The species is identical with the later described Colombian form *Rhadinaea lateristriga* (Berthold) from Popayán. The fact that another "Cuban" species, *Phyllobates bicolor* Bibron (*l. c.*), has never again been taken in Cuba, and that it is extremely similar to *P. melanorhinus* Berthold 1845 from Popayán, lends some support to this suggestion. That some Colombian specimens may have got to Paris via Cuba and been mislabelled "Cuba" in the process does not seem impossible in view of Humboldt's remark on the fate of some of his collections. He himself, for that matter, was in Popayán, in Cuba, and in Paris.

Until one of these suppositions is proven I prefer to use *Rhadinaea* rather than *Urotheca*.

In the Colombian material examined I find four valid forms of *Rhadinaea*, all of which have been named. Three names have been based on Colombian snakes:

lateristriga Berthold 1859 (*multilineatus* var. *B* Peters 1863)
antioquiensis Dunn 1943.

Two names were based on non-Colombian snakes:
fulviceps Cope 1886.
brevirostris Peters 1863.

I have not found among the Colombian material examined, and do not regard as Colombian:

decorata Gunther 1858, described from Mexico, and recorded as *Rhadinaea* from Purnio by Werner in 1899 (Verh. zool.-bot. Gesch. Wien, p. 472) and since then listed as Colombian. Werner gives a quite full description of the specimen he had and it was clearly not *decorata* but *fulviceps*. *R. decorata* occurs from Mexico to Darien, and may be expected in Colombia, but the one record so far is erroneous.

Coniophanes imperialis (Baird and Girard) 1859 was recorded from Purnio as *Erythrolamprus* by Werner (l. c., p. 474). It has not since been listed as Colombian. Comparison of Colombian specimens with the rather full description leaves no doubt that Warner had a specimen of *Rhadinaea lateristriga*. *Coniophanes imperialis* does not occur south of Honduras. Bailey, in his monograph of *Coniophanes,* suggested that this record might refer to a *Rhadinaea,* and I am happy to second his suggestion.

Key to Colombian forms of *Rhadinaea*.

A. Dorsal scales 17 throughout body; caudals more than 90; ventrals less than 160.
  B. Body with at most one light line on scale row I; no light spot on parietal; head and nape reddish; temporals 1-2 .... **fulviceps**
  BB. Body with two or more narrow white lines; a light spot on parietal; head and nape blackish; temporals 1-1 .... **lateristriga**
AA. Dorsal scales reduce to 15 at anus; caudals less than 75; ventrals more than 160.
  B. Dorsals 19-17-15; three narrow dark stripes; Central Andes .... **antioquiensis**
  BB. Dorsals 17-15; no distinct body markings; east of the Andes ..... **brevirostris**

NB. The only *Rhadinaea* known to me to reduce the scale rows are *antioquiensis* and *brevirostris*. No North American forms do so.

Rhadinaea pachyura fulviceps Cope.

Rhadinaea fulviceps Cope, 1886, Proc. Amer. Phil. Soc. 23, p. 279.

TYPE LOCALITY: Panamá.

RANGE: Central Panamá to central Colombia.

COLOMBIAN RANGE AND MATERIAL: From Panamá across to Caldas, Santander and Boyacá. Localities are: Purnio, San Joaquin, San Vicente, and Muzo. I have examined seven specimens.

REMARKS: Counts of Colombian specimens give: ventrals 137-148, caudals 102-117.

This snake was recorded as *Rhadinaea decorata* from Purnio by Werner in 1899 (Verh. zool.-bot. Wien, 49, p. 472).

The race *fulviceps* is replaced in western Panamá by the race *pachyura,* and this in turn is replaced in the mountains of Costa Rica by the race *decipiens.*

Rhadinaea lateristriga lateristriga (Bertnold).

Liophis lateristriga Berthold, 1859, Göttingen Anz. 3, p. 180.

Dromicus multilineatus var. *B* Peters, 1863, Mon. Berlin Ak., p. 279.

TYPE LOCALITY: Popayán, Colombia.

RANGE: Central Colombia to Ecuador.

COLOMBIAN RANGE AND MATERIAL: I have seen three specimens from Muzo and Sasaima. It has been recorded from Popayán by Berthold, from Bogotá by Peters, from Purnio by Werner (1899, l. c., p. 274) as *Erythrolamprus imperialis,* and from Bucaramanga by Hermano Nicéforo.

REMARKS: Counts of Colombian specimens give: ventrals 145-159, caudals 101-105.

The race *R. lateristriga multilineata* (Peters) described from Caracas and Pto. Cabello, Venezuela, differs mainly in having a light line on the head replacing the light spot on the parietal.

R. lateristriga is perhaps allied to *R. persimilis* Dunn of western Panamá and Costa Rica. It is quite close also to *fulviceps,* but the two are distinct species, both having been taken at Purnio and at Muzo.

Rhadinaea brevirostris (Peters).

Dromicus brevirostris Peters, 1863, Mon. Ak. Berlin, p. 280.

TYPE LOCALITY: Quito, Ecuador.

RANGE: Guianas to Bolivia.

COLOMBIAN RANGE AND MATERIAL: A single specimen from La Pedrera.

REMARKS: The Colombian specimen, a male, had 162 ventrals, 62 caudals, and 8 upper labials.

This species was placed by Boulenger in the synonymy of *Coluber undulatus* Wied, and has only recently been removed from it by Shreve. It appears as *Rhadinaea undulata* in Hmno. Nicéforo's list.

The true *undulatus* of Wied is a *Liophis*, and is not known from Colombia.

Rhadinaea antioquiensis Dunn.

Rhadinaea antioquiensis Dunn, 1943, Caldasia 8, p. 307.

TYPE LOCALITY: San Pedro, Antioquia, Colombia.

RANGE AND MATERIAL: Known only from the type female.

REMARKS: The type has 169 ventrals, 60 caudals, and 7-8 upper labials. It is possible that *antioquiensis* and *brevirostris* are each others nearest allies in Colombia.

Pliocercus Cope, 1860, Proc. Acad. Nat. Sci. Philadelphia, 12, p. 253.

GENOTYPE: *Pliocercus elapoides* Cope. Mexico.

DEFINITION: Snakes allied to *Pliocercus elapoides* Cope: structural characters those of *Rhadinaea;* dorsal scales 17; tail as long or longer than that of the longest tailed Rhadinaeas; body color of brilliant and definite rings.

RANGE: Mexico to Colombia.

CONTENT: Some five or six forms, mostly vicarious. One in Colombia.

REMARKS: In dividing the snakes related to *vermiculaticeps* (*Rhadinaea*) from those related to *elapoides* (*Pliocercus*) into two genera I prefer to follow Cope, who described both genera, and restrict *Pliocercus* to ringed snakes. Boulenger attempted a division of the same snakes on the basis of tail length, with singularly poor success. He got the two very similar Colombian snakes *lateristriga* and *fulviceps* (which have been confused as species) into different genera. An unequivocal division can be made on the basis of color pattern.

Pliocercus euryzonus euryzonus Cope.

Pliocercus euryzonus Cope, 1862, Proc. Acad. Nat. Sci. Philadelphia, p. 72.

TYPE LOCALITY: Truandó R., Chocó, Colombia.

RANGE: Darien, Panamá, to Central Colombia.

COLOMBIAN RANGE AND MATERIAL: I have seen 13 specimens from: Chocó, Segovia, Sta. Rosa, Pensilvania (4), Sonsón, Simitarra, Muzo (3), Paime. Hmno. Nicéforo records it from Yarumal, and the American Museum tells me they have one from Neiva.

Remarks: The northern race, *E. euryzonus dimidiatus,* occurs from the Panamá Canal Zone to Nicaragua.

Note on *Coniophanes.*

Bailey recently monographed the genus *Coniophanes* Hallowell. It is closely allied to *Rhadinaea,* differing chiefly in having the hind maxillary teeth grooved. The range is from Texas to Ecuador. The two Ecuadorian species are endemic, whereas the single Colombian species, with two races, extends north to Mexico.

As one of the two Colombian forms does not appear in Hmno. Nicéforo's list, and as Bailey had only one Colombian locality for the other race, I here set down both races and their ranges.

Coniophanes fissidens fissidens (Günther).

Range: Mexico to Central Colombia (Medellín, Jericó, Segovia, Barichara (San Gil).

Coniophanes fissidens andresensis Bailey.

Range: San Andrés Island in the Caribbean Sea.